

## 关。GDAŃSK UNIVERSITY 创 OF TECHNOLOGY

## Subject card

Subject name and code	Introduction to Higher Mathematics, PG_00040027								
Field of study	Mechanical Engineering, Mechanical Engineering								
Date of commencement of studies	October 2020		Academic year of realisation of subject			2020/2021			
Education level	first-cycle studies		Subject group			Obligatory subject group in the field of study			
Mode of study	Part-time studies		Mode of delivery			at the university			
Year of study	1		Language of instruction			Polish			
Semester of study	1		ECTS credits			3.0			
Learning profile	general academic profile		Assessment form			assessment			
Conducting unit	Mathematics Center -> Vice-Rector for Education								
Name and surname	Subject supervisor		dr Anita Dąbrowicz-Tlałka						
of lecturer (lecturers)	Teachers								
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project Seminar		Seminar	SUM	
	Number of study hours	0.0	15.0	0.0	0.0	0.0 15		15	
	WM - MiBM niestacjonarne - Matematyka 1, 2020/2021 (A.Tlałka) - Moodle ID: 8568 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=8568								
Learning activity and number of study hours	Learning activity	ng activity Participation ir classes include plan		Participation in consultation hours		Self-study SUM		SUM	
	Number of study hours	15		5.0		55.0		75	
Subject objectives	Students obtain competence in the range of using methods of mathematical analysis and linear algebra and knowledge how to solve simple problems that can be found in the field of engineering.								
Learning outcomes	Course outcome         Subject outcome         Method of verification						ication		
	[K6_W01] possesses mathematical knowledge within the range of linear algebra and mathematical analysis useful in characterising and interpreting mechanical systems, technological processes and operational properties of devices		Student uses methods of mathematical description of phenomena in the physical / mechanical / chemical processes.			[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation			
[K6_U01] is able to acquire information from specialized literary sources, databases and other resources, essential for solving engineering tasks; is able to compile the obtained information pieces and to interpr them, additionally is able to form conclusions and present justified opinion		cquire cialized bases and ential for asks; is able ed id to interpret able to form ent justified	Student is able to process the acquired information, analyze and interpret it, draw conclusions and reason opinions.			[SU3] Assessment of ability to use knowledge gained from the subject [SU2] Assessment of ability to analyse information			
Subject contents	The absolute value function – definition, solving equations and inequalities with absolute value, graphs of functions with absolute value. Power functions – solving power and polynomial equations and inequalities. Polynomials and rational functions – solving polynomial and rational equations and inequalities. Exponential function – properties and graphs, solving exponential equations and inequalities. Logarithmic functions – properties and graphs, solving logarithmic equations and inequalities. Trigonometric and cyclometric functions – properties and graphs, solving trigonometric and cyclometric equations and inequalities.								
Prerequisites and co-requisites	No requirements.								
Assessment methods	Subject passing criteria		Passing threshold			Percentage of the final grade			
and criteria	midterm colloquiums		50.0%			100.0%			

Recommended reading	Basic literature	<ol> <li>Matematyka. Podstawy z elementami matematyki wyższej, red. Wikieł B., Gdańsk, 2009.</li> <li>Jankowska K., Jankowski T., Zbiór zadań z matematyki, Gdańsk, 2009.</li> </ol>			
	Supplementary literature	1) Gewert M., Skoczylas Z., Analiza matematyczna 1. Przykłady i zadania, Wrocław, 2003.			
		2) Gewert M., Skoczylas Z., Analiza matematyczna 1. Definicje, twierdzenia, wzory, Wrocław, 2003.			
		3) Krysicki W., Włodarski L., Analiza matematyczna w zadaniach. Część I, Warszawa, 1997.			
	eResources addresses	WM - MiBM niestacjonarne - Matematyka 1, 2020/2021 (A.Tlałka) - Moodle ID: 8568 https://enauczanie.pg.edu.pl/moodle/course/view.php?id=8568			
Example issues/ example questions/ tasks being completed	1) Solve equation:				
	$2(\arcsin x)^2 - \pi \arcsin x + \pi^2/8 = 0$				
	2) Solve inequality:				
	$\log_{0,5} (x^2 - 7x + 12) > -1$				
Work placement	Not applicable				